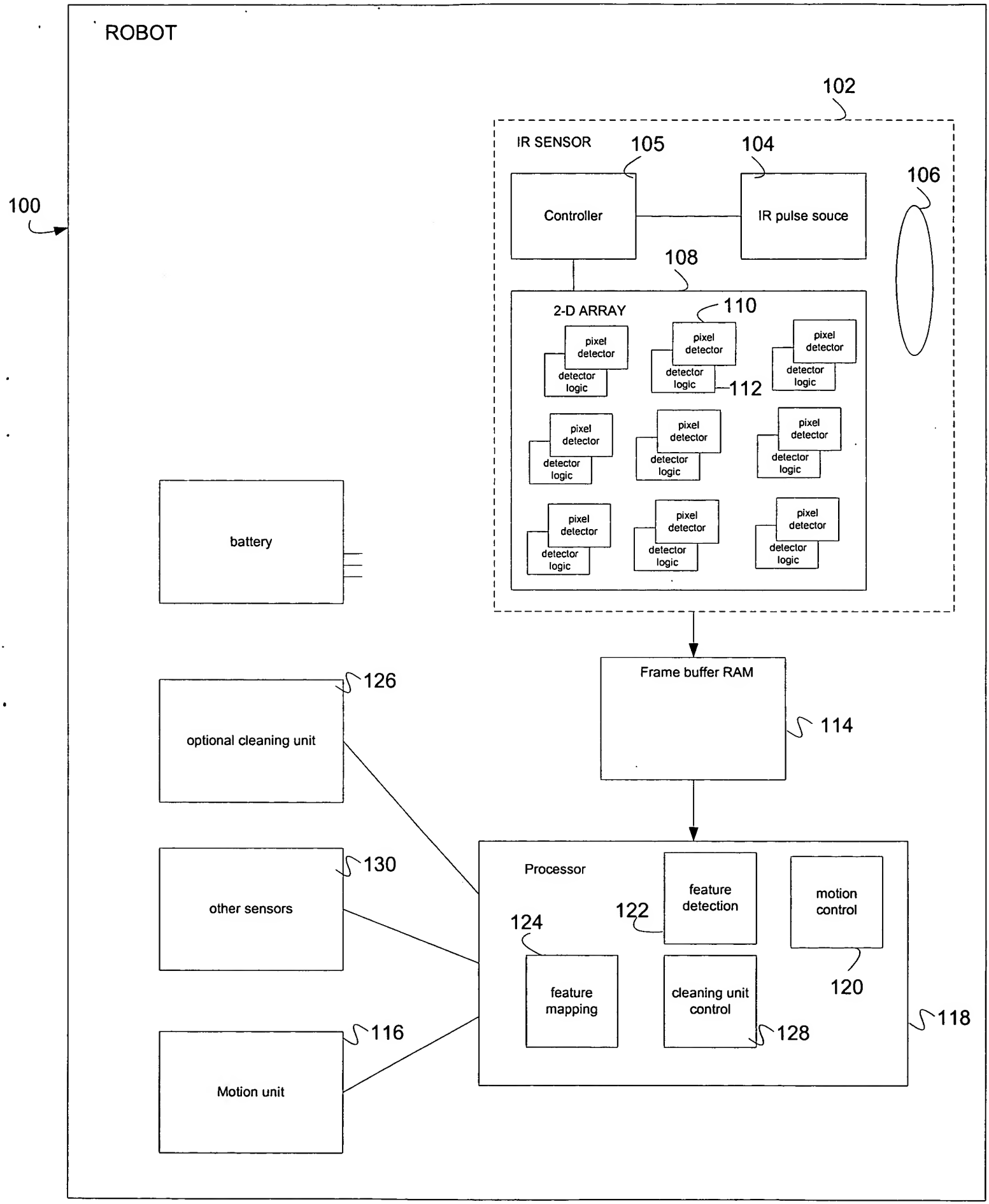
ROBOT
100
102
IR SENSOR
105
104
106
Controller
IR pulse souce
108
2-D ARRAY
110
pixel detector
detector logic
112
battery
Frame buffer RAM
114
126
optional cleaning unit
130
other sensors
116
Motion unit
Processor
feature detection
122
motion control
124
feature mapping
cleaning unit control
120
128
118

FIGURE 1

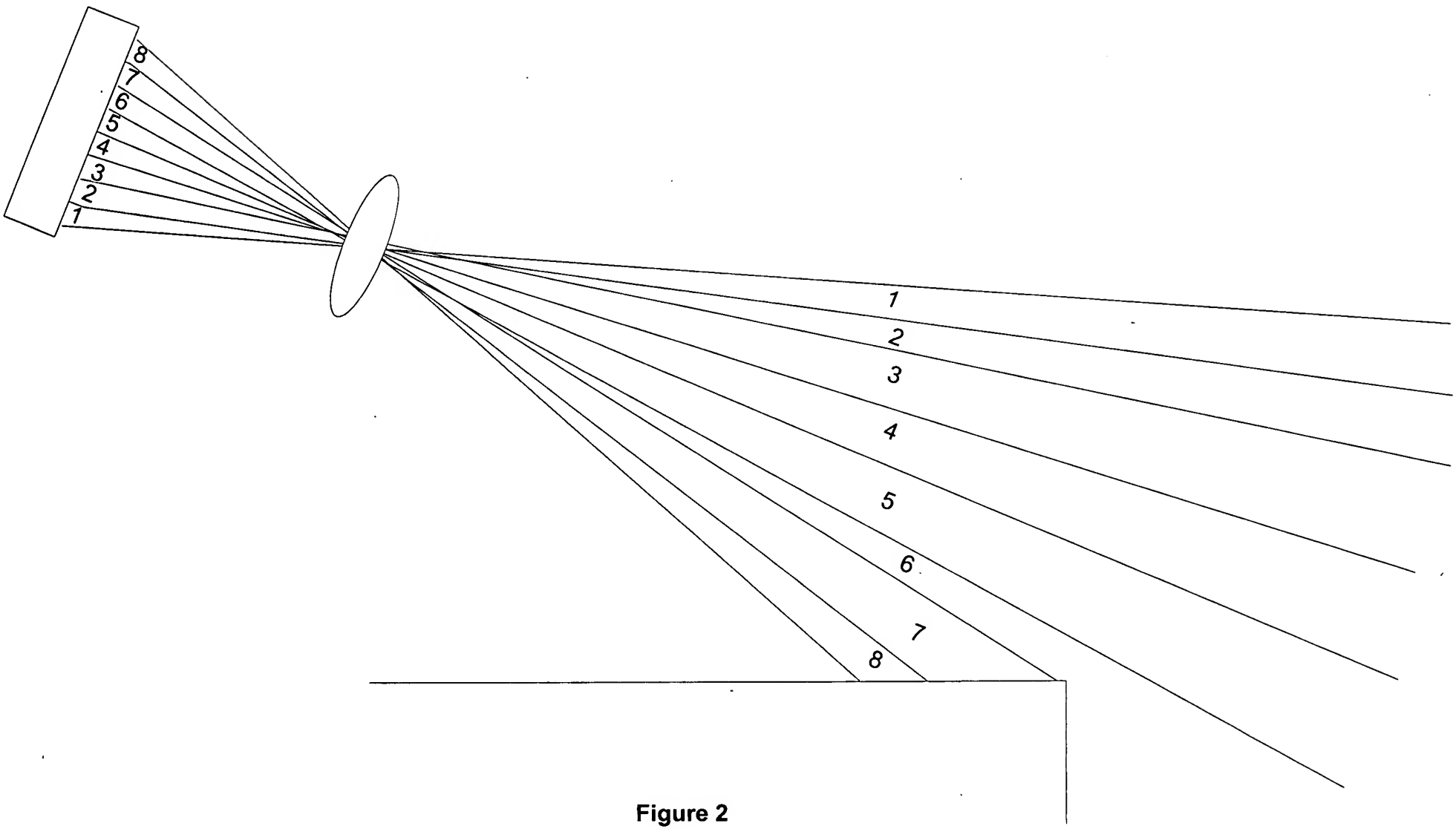

Figure 2

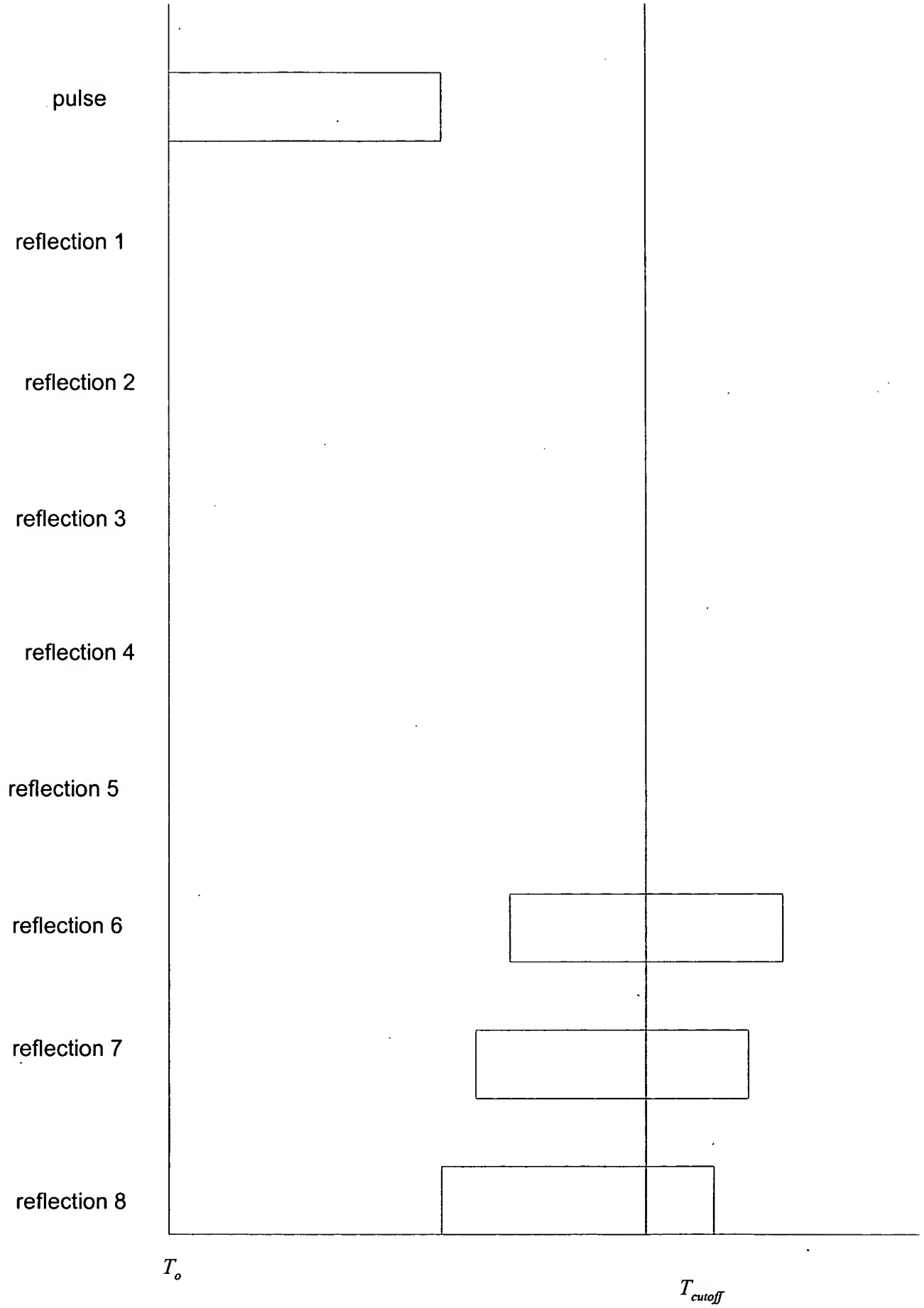
pulse
reflection 1
reflection 2
reflection 3
reflection 4
reflection 5
reflection 6
reflection 7
reflection 8
T_o
T_{cutoff}

FIGURE 3

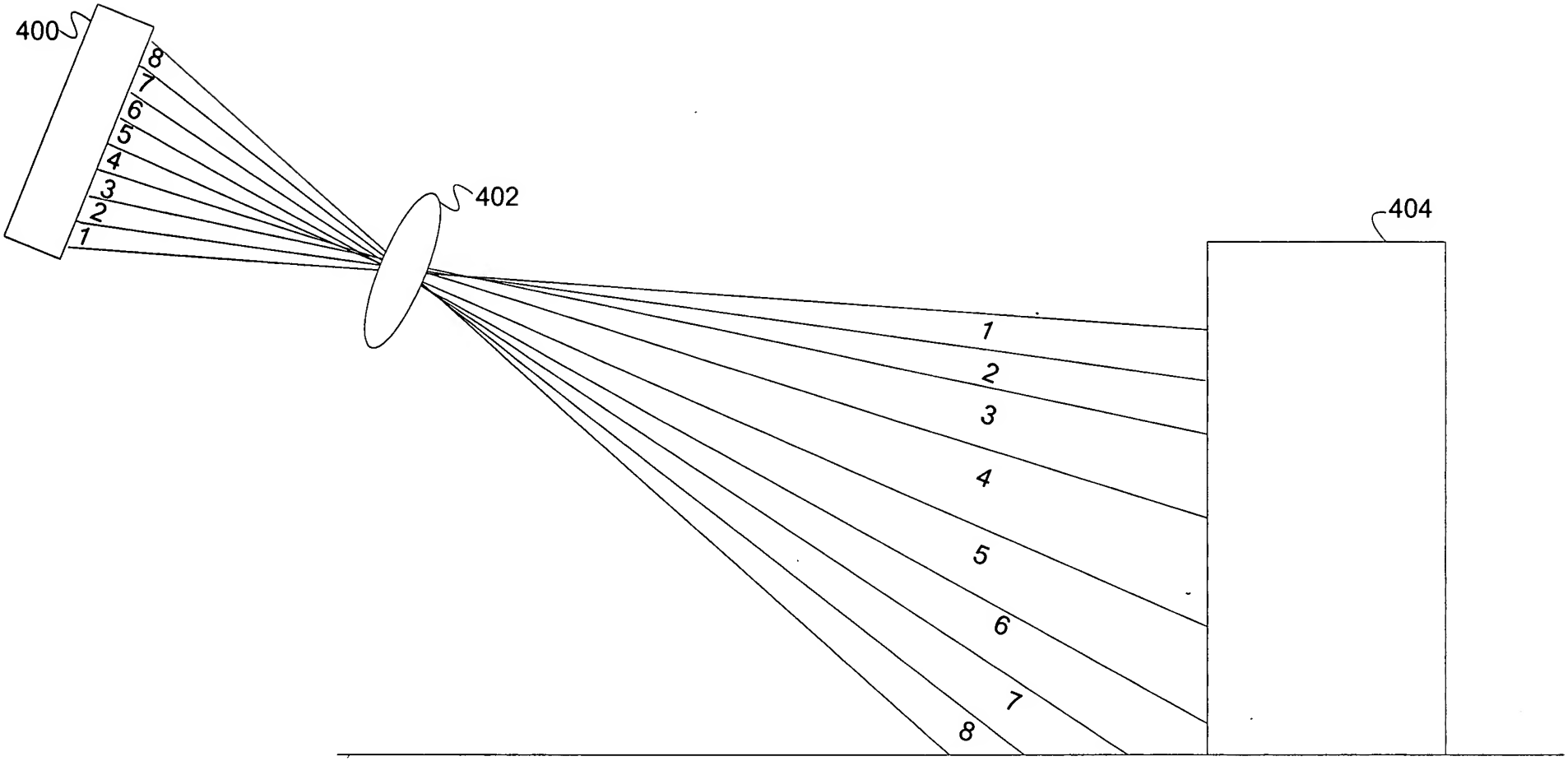

Figure 4

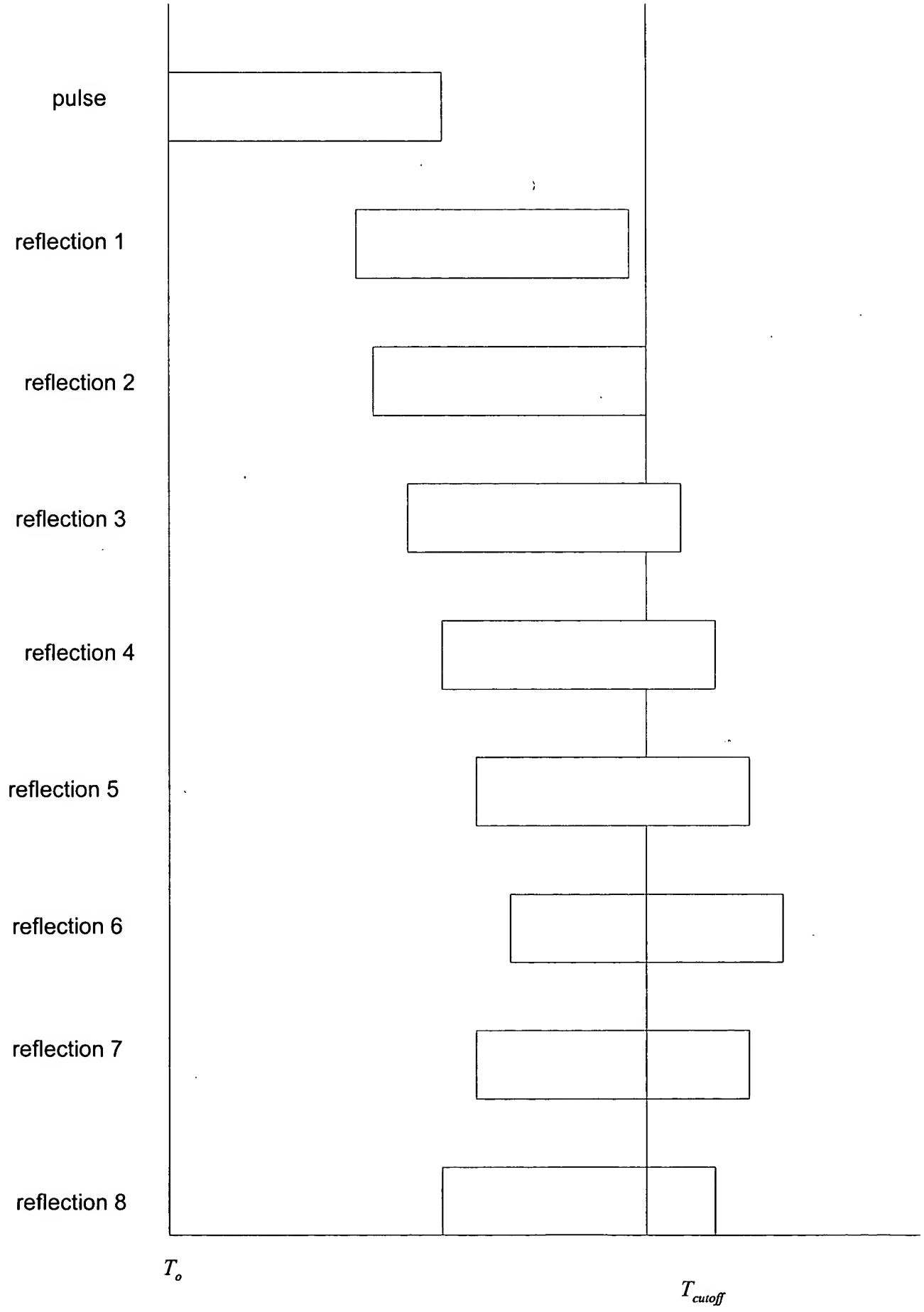
pulse
reflection 1
reflection 2
reflection 3
reflection 4
reflection 5
reflection 6
reflection 7
reflection 8
T_o
T_{cutoff}

FIGURE 5

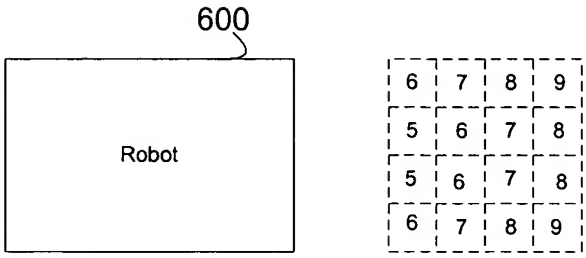

FIGURE 6A

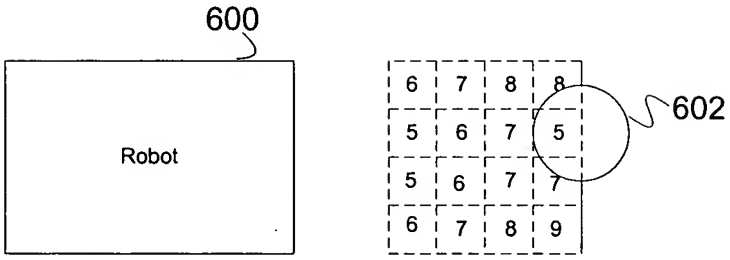

FIGURE 6B

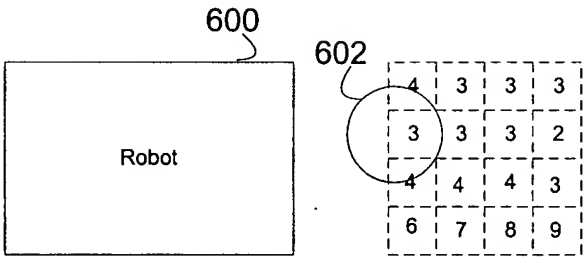

FIGURE 6C

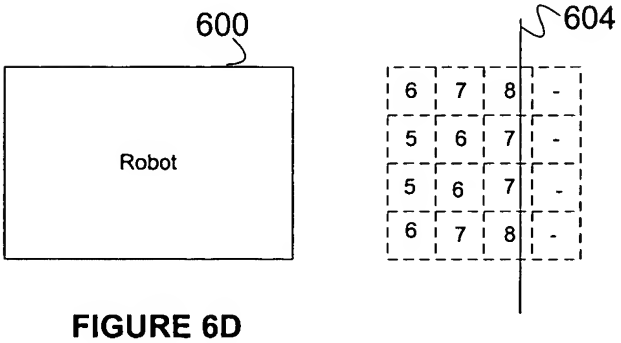

FIGURE 6D